

## ABSTRACT

A diffusion barrier alloy film has a diffusion barrier layer which has more excellent diffusion barrier properties than an Re-Cr alloy film, and can stand usage at higher temperatures (e.g., 1150°C or higher). The diffusion barrier layer 18 is made of an Re-W alloy  $\sigma$  phase containing 12.5 to 56.5% of W in terms of atomic composition and the remainder of Re excluding unavoidable impurities. A metal base 10 has a surface coated with a diffusion barrier layer 18. If required, the diffusion barrier layer 18 has a surface coated with a diffusion alloy layer 20 containing 10% or greater and less than 50% of Al, Cr, or Si in terms of atomic composition, providing a high-temperature apparatus member.